OPERATING PORK QUALITY TRAITS MEASUREMENTS AND THEIR RELATIONS TO DRIP LOSS

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ABSTRACT

Among the variety of quality parameters tested in this study (conductivity, pH and color), the ultimate pH of the *Longissimus dorsi* (LD) give the best prediction of drip loss.

The low stress conditions found here could be a part of an explanation.

INTRODUCTION

It can be difficult to select a good predictor of drip loss that can be easily assessed on-line: conductivity, pH, color could be some of them.

The aim of this study is to compare the prediction quality of a number of inexpensive quality traits measurements on drip loss, at three different times post-mortem.

METHODS

180 pigs (NN and Nn) were slaughtered with a groupwise Backloader CO_2 stunning device.

Measurements were performed at 30 min., 5 hours and 24 hours post mortem:

- pH (SYDEL, France): on the LD at the last rib,
- L-value (Minolta CR-300, Japan): on freshly cut LD at the 6^{th} rib,
- LD conductivity (LF-Star, Matthaüs, Germany): on the LD at the last rib,
- Drip loss: a 2cm thickness slice of LD was removed from the 6^{th} rib, put in commercial tray for 48 hours.

Linear and logistic regressions were carried out using continuous drip loss or drip loss in class (5 class: class 1 ≤0.5%; 0.5% ≤class 2 ≤0.75%; 0.75% ≤class 3 ≤1.0%; 1.0% ≤class 4 ≤1.5%; class 5 ≥1.5%) (SAS Institute, USA).

RESULTS

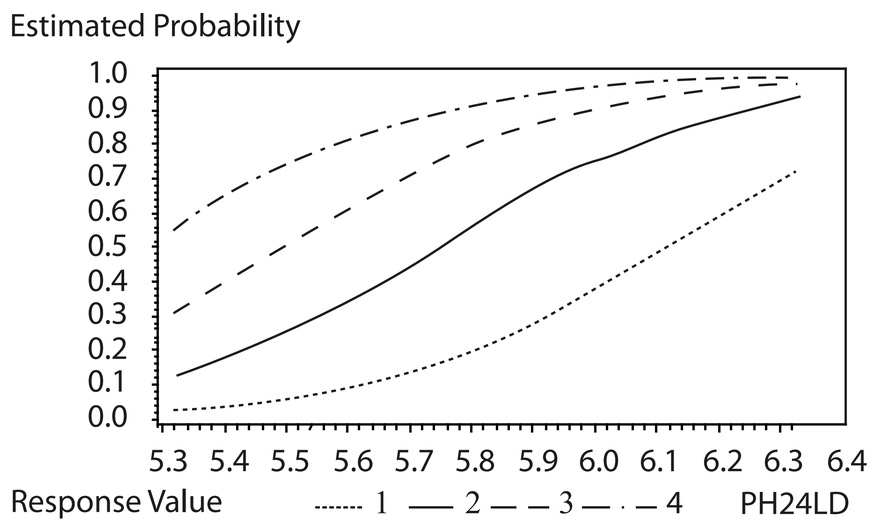
- The drip loss (m=1.12% ± 0.66) and PSE meat frequency (1.1% of pH30min. under 6.1) is particularly low in this experiment (results not shown).
- Correlation between drip loss and pH and conductivity shows better relation for measurements at 5 and 24 hours post mortem than 30 min. (table 1)
- Logistic regression analysis results (table 2): pH24 of *Longissimus dorsi* (pH24LD) ranks first from all other measurements in the model.

Table 1: Pearson correlation coefficients for *LD* parameters (*: P<0.01)

	pH5LD	cond5LD	pH24LD	L*LD	cond24LD
drip loss	-0.40*	-0.38*	-0.34*	0.33*	0.31*
pH5LD		-0.34*	0.33*	0.00	-0.33*
cond5LD			-0.07	0.15	0.60*
pH24LD				-0.19*	0.02
L*LD					0.07
cond24LD					

Table 2: Association of predicted probabilities and observed response for drip loss and *LD* parameters (logistic regression)

Step	parameter	percent concordant	percent discordant
1	pH24LD	63.7	34.1
2	+ L*LD	68.2	30.8
3	+ pH5LD	71.7	27.1



CONCLUSION

These results on higher correlations at 5 and 24h post-mortem between quality parameters and drip loss have been obtained in very low PSE-prone meats under lesser stressing handling and stunning conditions.

Under such conditions, pH24 of LD shows to be from all tested operating (on line) measurements the best (but perfectible) drip loss predictor.